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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,772	12/20/2001	Wieslaw J. Staszewski	12304-003001 / SWH/AVK/P7	9551
26161	7590	04/22/2004	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			TSAI, CAROL S W	
			ART UNIT	PAPER NUMBER
			2857	

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,772

Applicant(s)

STASZEWSKI, WIESLAW J.

Examiner

Carol S Tsai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22, 24-45, 47 and 48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 10-21, 24, 33-44, 47, and 48 is/are rejected.
- 7) ☒ Claim(s) 2-9, 22, 25-32 and 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 10-17, 20, 21, 24, 33-40, 43, 44, 47, and 48 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Publication 2003/0009300 to Giurgiutiu.

With respect to claims 1, 24, and 47, Giurgiutiu discloses a method of determining the structural health of a body, the method comprising the steps of identifying at least one phase characteristic of a signal represented by first data, the first data being derived from the body while bearing (a) at least a guided wave produced in response to application of at least one excitation signal to the body, and (b) a second excitation signal, and providing a measure of the structural health of the body using the at least one phase characteristic (see paragraphs 0030-0033; 0043-0045; 0047-0053; and 0070).

As to claims 10 and 33, Giurgiutiu also disclose identifying the magnitude of the instantaneous phase difference between the first and second data (see paragraphs 0030-0033).

As to claims 11 and 34, Giurgiutiu also discloses the guided wave being a Lamb wave (see paragraph 0034).

As to claims 12-14 and 35-37, Giurgiutiu also disclose attaching a first transducer to the body and applying the excitation signal to the first transducer to induce the propagation of the guided wave within the body (see paragraph 0030).

As to claims 15, 17, 38, and 40, Giurgiutiu also discloses at least one excitation signal applied to a transducer being arranged to produce a guided wave having a predetermined frequency (see paragraphs 0006 and 0025).

As to claims 16 and 39, Giurgiutiu also discloses the predetermined frequency being selected according to the dimensions of an anticipated defect within the body (see paragraph 0032).

As to claims 20, 21, 43, and 44, Giurgiutiu also discloses at least one excitation frequency being selected to include a predetermined mode of propagation of the guided wave within the body (see paragraphs 0030-0034).

As to claim 48, Giurgiutiu also discloses a computer readable storage medium having stored thereon a computer program element (see paragraph 0039).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 18, 19, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giurgiutiu in view of U. S. Patent No. 5,932,806 to Rose et al.

With respect to claims 18, 19, 41, and 42, Giurgiutiu disclose a predetermined frequency range in the hundreds of kHz band (see paragraph 0025).

Giurgiutiu does not disclose at least one predetermined frequency component comprising at least one frequency component in the range of 80 KHz to 10MHz.

Rose et al. teach at least one predetermined frequency component comprising at least one frequency component in the range of 80 KHz to 10MHz (see col. 9, lines 31-37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Giurgiutiu's method to include at least one predetermined frequency component comprising at least one frequency component in the range of 80 KHz to 10MHz, as taught by Rose et al., in order that guided waves can be induced into the structure as the transducer is electrically excited with a high-frequency harmonic signal.

Allowable Subject Matter

7. Claims 2-9, 22, 25-32, and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments filed 03/08/2004 have been fully considered but they are not persuasive.

Applicant argues that Giurgiutiu does not contain any technical motivation for introducing the use of a second excitation signal with the intention of producing detectable modulation of the propagating guided wave. The Examiner disagrees with Applicant. As set forth above, Giurgiutiu does teach the use of a second excitation signal with the intention of producing detectable modulation of the propagating guided wave (see paragraph 0033; Accordingly, a frequency sweep as in FIG. 8b may be desirable in that it permits the excitation of more than one frequency in the same measurement. An impulse signal as in FIG. 8c permits the excitation of a wide frequency spectrum, and paragraph 0070; The expressions contained in Eqs. (16) bridge the gap between high-frequency sensor-focused analysis and low-frequency structure-focused analysis. The present results cover the complete frequency spectrum and encompass both structure and sensor dynamics).

Applicant argues that the methodology and signal processing involved in Rose are very different from applicant's claimed invention because Rose uses two ultrasonic waves in which each wave is either a swept sine envelope excitation or an impulse excitation where damage is detected by noting any change in the spectrum of a response signals and successive response signals are compared to identify any such change. The Examiner disagrees with Applicant. In this case, Giurgiutiu discloses a predetermined frequency range in the hundreds of kHz band (see paragraph 0025). Giurgiutiu does not disclose the predetermined frequency component in the range of 80 KHz to 10MHz. Rose et al. teach the predetermined frequency component in the

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range of 80 KHz to 10MHz (see col. 9, lines 31-37) in order that guided waves can be induced into the structure as the transducer is electrically excited with a high-frequency harmonic signal. Therefore, the combination of Giurgiutiu and Rose clearly teach the claimed invention.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. W. Tsai whose telephone number is (571) 272-2224. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax number for TC 2800 is (703) 872-9306. Any

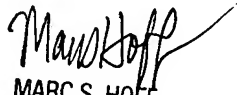
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inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (571) 272-1585 or (571) 272-2800.

In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.

Carol S. W. Tsai

04/17/04


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800